Space Weather Forecast

Issued on Sunday 9 March 2025 at 00:55 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Isolated Moderate class flares. G1/Minor Storm intervals expected day 1 (09 Mar).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with peak flare C3.9 at 08/1825 UTC from just over the east limb. There are six sunspot regions on the disc, however the majority of these are small and simple. The main exception is in the southwest, which is a longitudinally wide region, but has been generally inactive. This region is showing both decay within its trailer spots and some ongoing development within its leader spots.

No Earth-directed coronal mass ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: An erratic connection to the faster winds from a coronal hole was likely observed. Solar winds rose from background, below 400 km/s, to be slightly elevated at around 500km/s. However this included a period 08/1600-2100 UTC which saw solar winds become elevated at 520-600 km/s. Total Interplanetary Magnetic Field erratically rose from being Weak to be Moderate to Strong, ranging 10-19nT, peaking around 08/1610 UTC. The north-south component was weak and variable at first, but became predominately Moderate southward from 08/1520 UTC. Geomagnetic activity was Quiet to Unsettled (Kp 2-3) until 08/1800 UTC, then saw two periods of G1 Minor Storm 08/1800-09/0000 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) was at Background with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is forecast, with a chance of Isolated Moderate class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Ongoing erratic connection to the faster solar winds is expected at first, before easing from later day 1 (09 Mar) onward. The next fast wind enhancement from is expected either late on day 4 (12 Mar) or just beyond this period. G1-G2 Minor to Moderate storm intervals at first are expected to become Quiet to Unsettled with isolated Active intervals later day 1 (09 Mar), then mainly Quiet to Unsettled day 2 onward (10 Mar). The onset of the next fast wind brings a slight chance of G1 Minor Storm intervals day 4 (12 Mar).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to be at Background with no Solar Radiation Storms occurring.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	80	5	1	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	40	40	50	50
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	2	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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